

IN THE CLAIMS

Please amend the claims as follows:

1. (Currently Amended) A method for evaluating a fixing member, comprising:
carrying out ~~the universal~~ a hardness test on the ~~for a~~ fixing member, which is used to fix a toner and has a surface layer, by measuring a hardness value equal to applying a pressure deformation applied to said surface layer of the fixing member by a probe divided by an area of indentation as a function of indentation depth measured while the pressure is applied[[,]] at a room temperature, wherein:

when [[the]] deformation of said surface layer as a result of the indentation depth while the pressure is applied is within an elastic range, said fixing member is regarded as a standard product, and

the indentation depth is less than one-fifth of a thickness of said surface layer.

2. (Canceled)

3. (Currently Amended) A method for evaluating a fixing member used to fix a toner comprising:

carrying out ~~the universal~~ a hardness test on the fixing member by measuring a hardness value equal to a pressure applied to a surface layer of the fixing member by a probe divided by an area of indentation as a function of indentation depth measured while the pressure is applied at a room temperature ~~for an~~ the indentation depth of 1 μm from a surface of the surface layer of ~~the fixing member at a room temperature~~, wherein

when the ~~universal~~ hardness value H_U for the indentation depth of 1 μm is less than or equal to ~~satisfies a relation,~~ $H_U \leq 30 \text{ [N/mm}^2\text{]}$ 30 N/mm², said fixing member is regarded

as a standard product.

4. (Currently Amended) A method for evaluating a fixing member used to fix a toner comprising:

carrying out ~~the universal~~ a hardness test on the fixing member by measuring a hardness value equal to a pressure applied to a surface of the fixing member by a probe divided by an area of indentation as a function of indentation depth measured while the pressure is applied at a room temperature for each of indentation depths of 1 μm to 4 μm from the surface of said fixing member, wherein

when the ~~universal~~ hardness value HU for the indentation depth of 1 μm is less than or equal to satisfies a relation, $HU \leq 30 \text{ [N/mm}^2\text{]}$ 30 N/mm², and[[,]]

when the ~~universal~~ hardness value HU for the indentation depth of 4 μm is less than or equal to satisfies a relation, $HU \leq 12 \text{ [N/mm}^2\text{]}$ 12 N/mm²,

said fixing member is regarded as a standard product.

5. (Currently Amended) A method for evaluating a fixing member according to claim 4, wherein said ~~universal~~ hardness test is carried out at a test environment temperature of 25°C.

6. (Currently Amended) A method for evaluating a fixing member used to fix a toner, comprising:

carrying out ~~the universal~~ a hardness test at a test environment temperature of 200°C on the fixing member by measuring a hardness value equal to a pressure applied to a surface of the fixing member by a probe divided by an area of indentation as a function of indentation depth measured while the pressure is applied for each of indentation depths of 1 μm to 4 μm

from the surface of said fixing member, wherein

when the ~~universal~~ hardness value H_U for the indentation depth of 1 μm is less than or equal to ~~satisfies a relation, $H_U \leq 10$ [N/mm²]~~ 10 N/mm², and[[,]]

when the ~~universal~~ hardness value H_U for the indentation depth of 4 μm is less than or equal to ~~satisfies a relation, $H_U \leq 4$ [N/mm²]~~ 4 N/mm²,

said fixing member is regarded as a standard product.

7. (Currently Amended) A method for evaluating a fixing member according to claim 4, wherein a contact angle when a water-drop is contacted onto the surface of said fixing member is more than 95 degrees.

8. (Currently Amended) A method for evaluating a fixing member used to fix a toner, comprising:

carrying out ~~the universal~~ a hardness test respectively at a room temperature and at a running temperature of the fixing member by measuring a hardness value equal to a pressure applied to a surface of the fixing member by a probe divided by an area of indentation as a function of indentation depth measured while the pressure is applied for each of indentation depths of 1 μm to 4 μm from the surface of the fixing member, wherein

when ~~the~~ each of the ~~universal~~ hardness values at ~~the~~ a same depth from the surface of said fixing member is compared, if the ~~universal~~ hardness value at the room temperature is three times of the ~~universal~~ hardness value at the running temperature, said fixing member is regarded as a standard product.

9. (Currently Amended) A method for evaluating a fixing member used to fix a toner, said fixing member being produced by sequentially coating an elastic layer and a

separation layer onto a base element, comprising:

carrying out ~~the universal~~ a hardness test by measuring a hardness value equal to a pressure applied to a surface of said separation layer by a probe divided by an area of indentation as a function of indentation depth measured while the pressure is applied for each of first and second indentation depths from the surface of said separation layer, wherein when the ~~universal~~ hardness value for each of said first and second indentation depths is in a predetermined value, said fixing member is regarded as a standard product.

10. (Currently Amended) A method for evaluating a fixing member used to fix a toner, said fixing member being produced by sequentially coating an elastic layer and a separation layer onto a base element, comprising:

carrying out ~~the universal~~ a hardness test by measuring a hardness value equal to a pressure applied to a surface of said separation layer by a probe divided by an area of indentation as a function of indentation depth measured while the pressure is applied for each of indentation depths of 1 μm to 4 μm from the surface of said separation layer, wherein when the ~~universal~~ hardness value H_U for the indentation depth of 1 μm is less than or equal to ~~satisfies the relation,~~ $H_U \leq 30 \text{ [N/mm}^2\text{]}$ 30 N/mm², and~~[[,]]~~

when the ~~universal~~ hardness value H_U for the indentation depth of 4 μm is less than or equal to ~~satisfies the relation,~~ $H_U \leq 12 \text{ [N/mm}^2\text{]}$ 12 N/mm²,

said fixing belt is regarded as a standard product.

11. (Currently Amended) A method for evaluating a fixing member according to claim 10, wherein said ~~universal~~ hardness test is carried out at a test environment temperature of 25°C.

12. (Currently Amended) A method for evaluating a fixing member used to fix a toner, said fixing member being produced by sequentially coating an elastic layer and a separation layer onto a base element, wherein

~~the universal~~ a hardness test is carried out at a test environment temperature of 200°C on the fixing member by measuring a hardness value equal to a pressure applied to a surface of said separation layer by a probe divided by an area of indentation as a function of indentation depth measured while the pressure is applied for each of indentation depths of 1 μm to 4 μm from the surface of said separation layer,

when the ~~universal~~ hardness value H_U for the indentation depth of 1 μm is less than or equal to satisfies the relation, $H_U \leq 10 \text{ [N/mm}^2\text{]}$ 10 N/mm², and[[,]]

when the ~~universal~~ hardness value H_U for the indentation depth of 4 μm is less than or equal to satisfies the relation, $H_U \leq 4 \text{ [N/mm}^2\text{]}$ 4 N/mm²,

said fixing member is regarded as a standard product.

13. (Original) A method for evaluating a fixing member according to claim 10, wherein a contact angle when a water-drop is contacted onto the surface of said separation layer is more than 95 degrees.

14. (Original) A method for evaluating a fixing member according to claim 10, wherein said elastic layer is made of silicone gum.

15. (Original) A method for evaluating a fixing member according to claim 10, wherein said separation layer is made of a material including at least one of polytetrafluoroethylene (PTFE) resin, polytetrafluoroethylene-perfluoro-alkoxyl (PEA) vinyl ether copolymer resin, and polytetrafluoroethylene-fluorinated ethylene propylene (FEP)

copolymer resin.

16. (Original) A method for evaluating a fixing member according to claim 10, wherein said fixing member is a fixing belt.

17. (Original) A method for evaluating a fixing member according to claim 10, wherein said fixing member is a thermal fixing roller.

18. (Currently Amended) A fixing belt used to fix a toner, wherein when a measurement is carried out by measuring a hardness value equal to a pressure applied to a surface of the belt by a probe divided by an area of indentation as a function of indentation depth measured while the pressure is applied at a test environment temperature of 25°C,

the ~~universal~~ hardness HU value for an indentation depth of 1 μm ~~depth~~ from the surface of the belt is less than or equal to ~~satisfies the relation,~~ $HU \leq 30 \text{ [N/mm}^2\text{]}$ 30 N/mm², and[[,]]

the ~~universal~~ hardness value HU for an indentation depth of 4 μm is less than or equal to ~~satisfies the relation,~~ $HU \leq 12 \text{ [N/mm}^2\text{]}$ 12 N/mm².

19. (Currently Amended) A fixing belt used to fix a toner, wherein when a measurement is carried out by measuring a hardness value equal to a pressure applied to a surface of the belt by a probe divided by an area of indentation as a function of indentation depth measured while the pressure is applied at a test environment temperature of 200°C,

the ~~universal~~ hardness HU value for an indentation depth of 1 μm from the surface of the belt is less than or equal to ~~satisfies the relation,~~ $HU \leq 10 \text{ [N/mm}^2\text{]}$ 10 N/mm², and[[,]]

the ~~universal~~ hardness value HU for an indentation depth of 4 μm is less than or equal to ~~satisfies the relation,~~ $HU \leq 4 \text{ [N/mm}^2\text{]}$ 4 N/mm².

20. (Original) A fixing belt according to claim 18, wherein a contact angle when a water-drop is contacted onto the surface of said belt is more than 95 degrees.

21. (Currently Amended) A fixing belt used to fix a toner, comprising:
a surface configured such that carrying out the universal when a hardness test is carried out respectively at a room temperature and at a running temperature of the belt by measuring a hardness value equal to a pressure applied to the surface of the belt by a probe divided by an area of indentation as a function of indentation depth measured while the pressure is applied for each of indentation depths of 1 μm to 4 μm from the surface of the said belt, ~~wherein and~~ when ~~the~~ each of the ~~universal~~ hardness values at ~~the~~ a same depth from the surface of said belt is compared, then the ~~universal~~ hardness value at the room temperature is three times of the ~~universal~~ hardness value at the running temperature.

22. (Currently Amended) A fixing belt formed by sequentially coating an elastic layer and a separation layer onto a base element, wherein
when a measurement is carried out by measuring a hardness value equal to a pressure applied to a surface of the separation layer by a probe divided by an area of indentation as a function of indentation depth measured while the pressure is applied at a test environment temperature of 25°C,

the ~~universal~~ hardness HU value for an indentation depth of 1 μm from the surface of said separation layer is less than or equal to ~~satisfies the relation, $HU \leq 30 \text{ [N/mm}^2\text{]}$~~ 30 N/mm², and[[,]]

the ~~universal~~ hardness value HU for an indentation depth of 4 μm is less than or equal to ~~satisfies the relation, $HU \leq 12 \text{ [N/mm}^2\text{]}$~~ 12 N/mm².

23. (Currently Amended) A fixing belt formed by sequentially coating an elastic layer and a separation layer onto a base element, wherein

when ~~the~~ a measurement is carried out by measuring a hardness value equal to a pressure applied to a surface of the separation layer by a probe divided by an area of indentation as a function of indentation depth measured while the pressure is applied at a test environment temperature of 200°C,

the ~~universal~~ hardness HU value for an indentation depth of 1 μm from the surface of said separation layer is less than or equal to ~~satisfies the relation, $HU \leq 10$ [N/mm²]~~ 10 N/mm², and[[,]]

the ~~universal~~ hardness value HU for an indentation depth of 4 μm is less than or equal to ~~satisfies the relation, $HU \leq 4$ [N/mm²]~~ 4 N/mm².

24. (Original) A fixing belt according to claim 22, wherein a contact angle when a water-drop is contacted onto a surface of said separation layer is more than 95 degrees.

25. (Currently Amended) A fixing belt according to claim ~~25~~ 22, wherein said elastic layer is made of silicone gum.

26. (Original) A fixing belt according to claim 22, wherein said separation layer is made of a material including at least one of polytetrafluoroethylene (PTFE) resin, polytetrafluoroethylene-perfluoro-alkoxyl (PEA) vinyl ether copolymer resin, and polytetrafluoroethylene-fluorinated ethylene propylene (FEP) copolymer resin.

27. (Currently Amended) A thermal fixing roller used to fix a toner, wherein
when a measurement is carried out by measuring a hardness value equal to a pressure applied to a surface of the roller by a probe divided by an area of indentation as a function of

indentation depth measured while the pressure is applied at a test environment temperature of 25°C,

the ~~universal hardness HU~~ value for an indentation depth of 1 μm from the surface of the roller is less than or equal to ~~satisfies the relation, $HU \leq 30 \text{ [N/mm}^2\text{]}$~~ 30 N/mm², and[[,]]

the ~~universal hardness~~ value HU for an indentation depth of 4 μm is less than or equal to ~~satisfies the relation, $HU \leq 12 \text{ [N/mm}^2\text{]}$~~ 12 N/mm².

28. (Currently Amended) A thermal fixing roller used to fix a toner, wherein
when a measurement is carried out by measuring a hardness value equal to a pressure applied to a surface of the roller by a probe divided by an area of indentation as a function of indentation depth measured while the pressure is applied at a test environment temperature of 200°C,

the ~~universal hardness HU~~ value for an indentation depth of 1 μm from the surface of the roller is less than or equal to ~~satisfies the relation, $HU \leq 10 \text{ [N/mm}^2\text{]}$~~ 10 N/mm², and[[,]]

the ~~universal hardness~~ value HU for an indentation depth of 4 μm is less than or equal to ~~satisfies the relation, $HU \leq 4 \text{ [N/mm}^2\text{]}$~~ 4 N/mm².

29. (Original) A thermal fixing roller according to claim 27, wherein a contact angle when a water-drop is contacted onto the surface of said roller is more than 95 degrees.

30. (Currently Amended) A thermal fixing roller used to fix a toner, comprising:
a surface configured such that ~~carrying out the universal~~ when a hardness test is
carried out respectively at a room temperature and at a running temperature of the roller by measuring a hardness value equal to a pressure applied to the surface of the roller by a probe divided by an area of indentation as a function of indentation depth measured while the

pressure is applied for each of indentation depths of 1 μm to 4 μm from the surface of the roller, ~~wherein and~~ when ~~the~~ each of the ~~universal~~ hardness values at ~~the~~ a same depth from the surface of said roller is compared, then the ~~universal~~ hardness value at the room temperature is three times of the ~~universal~~ hardness value at the running temperature.

31. (Currently Amended) A thermal fixing roller formed by sequentially coating an elastic layer and a separation layer onto a base element, wherein

when ~~a~~ the measurement is carried out by measuring a hardness value equal to a pressure applied to a surface of the separation layer by a probe divided by an area of indentation as a function of indentation depth measured while the pressure is applied at a test environment temperature of 25°C,

the ~~universal~~ hardness HU value for an indentation depth of 1 μm from the surface of said separation layer is less than or equal to ~~satisfies the relation, $HU \leq 30$ [N/mm²]~~ 30 N/mm², and[[,]]

the ~~universal~~ hardness value HU for an indentation depth of 4 μm is less than or equal to ~~satisfies the relation, $HU \leq 12$ [N/mm²]~~ 12 N/mm².

32. (Currently Amended) A thermal fixing roller formed by sequentially coating an elastic layer and a separation layer onto a base element, wherein

when ~~a~~ the measurement is carried out by measuring a hardness value equal to a pressure applied to a surface of the separation layer by a probe divided by an area of indentation as a function of indentation depth measured while the pressure is applied at a test environment temperature of 200°C,

the ~~universal~~ hardness HU value for an indentation depth of 1 μm from the surface of

said separation layer is less than or equal to ~~satisfies the relation, $HU \leq 10$ [N/mm²]~~ 10
N/mm², and[[,]]

the ~~universal hardness value~~ HU for an indentation depth of 4 μm is less than or equal
to ~~satisfies the relation, $HU \leq 4$ [N/mm²]~~ 4 N/mm².

33. (Original) A thermal fixing roller according to claim 28, wherein a contact angle
when a water-drop is contacted onto the surface of said separation layer is more than 95
degrees.

34. (Original) A thermal fixing roller according to claim 31, wherein said elastic
layer is made of silicone gum.

35. (Original) A thermal fixing roller according to claim 31, wherein said separation
layer is made of a material including at least one of polytetrafluoroethylene (PTFE) resin,
polytetrafluoroethylene-perfluoro-alkoxyl (PFA) vinyl ether copolymer resin, and
polytetrafluoroethylene-fluorinated ethylene propylene (FEP) copolymer resin.

36. (Currently Amended) A thermal fixing apparatus, comprising:
a heat roller ~~which is~~ configured to be heated by a heat source;
a fixing roller ~~which is~~ disposed parallel to said heat roller;
a fixing belt ~~which is~~ wound between said heat roller and said fixing roller, ~~and is said~~
fixing belt being configured to be heated by said heat roller ~~as well as is rotated by said both~~
~~rollers;~~ and

a press roller ~~which is contacted to the~~ in contact with a surface of said fixing belt ~~and~~
forms to form a nip section ~~between said fixing belt~~, wherein

when a ~~the universal~~ hardness test is carried out by measuring a hardness value equal

to a pressure applied to the surface of the fixing belt by a probe divided by an area of indentation as a function of indentation depth measured while the pressure is applied for an
the indentation depth of 1 μm from the surface of the fixing belt at a room temperature, the
universal hardness value HU of said fixing belt is less than or equal to satisfies the relation,
 $HU \leq 30 \text{ [N/mm}^2\text{]} \text{ } 30 \text{ N/mm}^2$.

37. (Currently Amended) An image forming apparatus, comprising:

a thermal fixing apparatus,

said thermal fixing apparatus including:

a heat roller ~~which is~~ configured to be heated by a heat source[[,]];

a fixing roller ~~which is~~ disposed parallel to said heat roller[[,]];

a fixing belt ~~which is~~ wound between said heat roller and said fixing roller, ~~and is said~~
fixing belt being configured to be heated by said heat roller ~~as well as is rotated by said both~~
~~rollers;~~ and

a press roller ~~which is contacted to the~~ in contact with a surface of said fixing belt ~~and~~
forms to form a nip section ~~between said fixing belt,~~ wherein

when ~~a the universal~~ hardness test is carried out by measuring a hardness value equal
to a pressure applied to the surface of the fixing belt by a probe divided by an area of
indentation as a function of indentation depth measured while the pressure is applied for an
the indentation depth of 1 μm from the surface of the fixing belt at a room temperature, the
universal hardness value HU of said fixing belt is less than or equal to satisfies the relation,
 $HU \leq 30 \text{ [N/mm}^2\text{]} \text{ } 30 \text{ N/mm}^2$.

38. (Currently Amended) A thermal fixing apparatus, comprising:

a fixing belt, ~~wherein said fixing belt is formed by sequentially coating an elastic layer and a separation layer onto a base element, and wherein~~

~~when the a measurement is carried out by measuring a hardness value equal to a pressure applied to a surface of said separation layer by a probe divided by an area of indentation as a function of indentation depth measured while the pressure is applied at a test environment temperature of 200°C,~~

~~the universal hardness HU value for an indentation depth of 1 μm from the surface of said separation layer is less than or equal to satisfies the relation, $HU \leq 10 \text{ [N/mm}^2\text{]}$ 10 N/mm², and[[,]]~~

~~the universal hardness value HU for an indentation depth of 4 μm is less than or equal to satisfies the relation, $HU \leq 4 \text{ [N/mm}^2\text{]}$ 4 N/mm².~~

39. (Currently Amended) A thermal fixing apparatus, comprising:

a thermal fixing roller, ~~wherein said thermal fixing roller is formed by sequentially coating an elastic layer and a separation layer onto a base element, and wherein~~

~~when the a measurement is carried out by measuring a hardness value equal to a pressure applied to a surface of said separation layer by a probe divided by an area of indentation as a function of indentation depth measured while the pressure is applied at a test environment temperature of 200°C,~~

~~the universal hardness HU value for an indentation depth of 1 μm from the surface of said separation layer is less than or equal to satisfies the relation, $HU \leq 10 \text{ [N/mm}^2\text{]}$ 10 N/mm², and[[,]]~~

~~the universal hardness value HU for an indentation depth of 4 μm is less than or equal~~

~~to satisfies the relation, $HU \leq 4 \text{ [N/mm}^2\text{]}$~~ 4 N/mm^2 .

40. (Currently Amended) An image forming apparatus, comprising:
a fixing belt, ~~wherein said fixing belt is formed by sequentially coating an elastic layer and a separation layer onto a base element, and wherein~~
when ~~the~~ a measurement is carried out by measuring a hardness value equal to a pressure applied to a surface of said separation layer by a probe divided by an area of indentation as a function of indentation depth measured while the pressure is applied at a test environment temperature of 200°C,

the ~~universal hardness HU value~~ for an indentation depth of 1 μm from the surface of said separation layer is less than or equal to ~~satisfies the relation, $HU \leq 10 \text{ [N/mm}^2\text{]}$~~ 10 N/mm^2 , and ~~[[,]]~~

the ~~universal hardness value HU~~ for an indentation depth of 4 μm is less than or equal to ~~satisfies the relation, $HU \leq 4 \text{ [N/mm}^2\text{]}$~~ 4 N/mm^2 .

41. (Currently Amended) An image forming apparatus, comprising:
a thermal fixing roller, ~~wherein said thermal fixing roller is formed by sequentially coating an elastic layer and a separation layer onto a base element, and wherein~~
when ~~the~~ a measurement is carried out by measuring a hardness value equal to a pressure applied to a surface of said separation layer by a probe divided by an area of indentation as a function of indentation depth measured while the pressure is applied at a test environment temperature of 200°C,

the ~~universal hardness HU value~~ for an indentation depth of 1 μm from the surface of said separation layer is less than or equal to ~~satisfies the relation, $HU \leq 10 \text{ [N/mm}^2\text{]}$~~ 10 N/mm^2

Application Serial No.: 10/664,920
Reply to Office Action dated February 8, 2005

N/mm², and[[,]]

the ~~universal~~ hardness value HU for an indentation depth of 4 μm is less than or equal
to satisfies the relation, $HU \leq 4 \text{ [N/mm}^2\text{]} 4 \text{ N/mm}^2$.